

DESCRIPTION OF FOUR NEW CYPRINOIDS (RHODEINÆ).

BY HENRY W. FOWLER.

The following are all contained in the collection of the Academy of Natural Sciences of Philadelphia. Three other species, well known, are also listed for comparison in this connection to exhibit the variations, as represented by rather good series.

Rhodeus sericeus (Pallas).

Head $3\frac{3}{4}$ to 4; depth $2\frac{1}{2}$ to $2\frac{4}{5}$; D. usually iii, 9, 1, rarely iii, 8, 1; A. usually iii, 8, 1, frequently iii, 9, 1; scales 34 to 37, usually 6 tubes + 3; 10 to 12 transverse scales from dorsal; 14 to 17 predorsal scales; snout $3\frac{1}{5}$ to $3\frac{1}{2}$ in head; eye $2\frac{9}{16}$ to $3\frac{1}{4}$; maxillary $3\frac{1}{6}$ to $4\frac{1}{8}$; interorbital $2\frac{1}{4}$ to $2\frac{2}{5}$; teeth 5—5; length 2 to $2\frac{3}{8}$ inches. Europe; Italy (Bonaparte 427).

Rhodeus maculatus sp. nov. Fig. 1.

Acheilognathus imberbis J. F. Abbott, Proc. U. S. Nat. Mus., XXIII, 1901, p. 484, Pei Ho River, at Tien Tsin, China. (Part.)

Head $3\frac{3}{5}$; depth $2\frac{2}{5}$; D. iii, 10, 1; A. iii, 10, 1; P. 1, 11?; V. 1, 7; scales 30 + 2; tubes 5; 11 scales transversely, between dorsal and

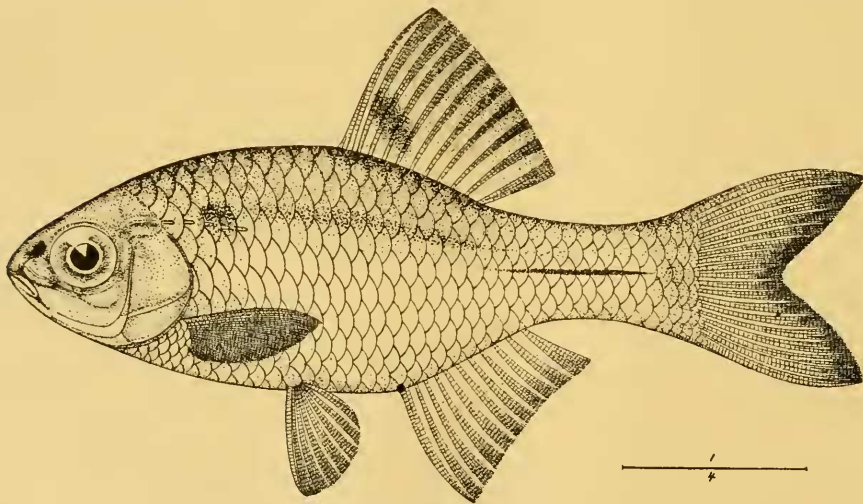


Fig. 1.—*Rhodeus maculatus* Fowler. (Type.)

anal origins; 12 predorsal scales; head width $1\frac{7}{8}$ its length; head depth at occiput $1\frac{1}{8}$; snout $4\frac{1}{2}$; eye $2\frac{4}{5}$; maxillary $3\frac{1}{2}$; interorbital $2\frac{1}{2}$; first branched dorsal ray $1\frac{1}{8}$; first branched anal ray $1\frac{1}{4}$; least depth of caudal peduncle 2; pectoral $1\frac{2}{7}$; ventral $1\frac{3}{4}$.

Body well compressed, deep, contour ovoid, edges convexly rounded, and greatest depth about ventral origin. Caudal peduncle compressed, least depth about $1\frac{1}{2}$ its length.

Head small, compressed, deep, flattened sides but slightly convergent below, and lower profile a little more inclined than upper. Snout short, convex over surface and end, projecting beyond mandible, and length about $\frac{3}{4}$ its width. Eye large, circular, scarcely elevated, and center about first $\frac{2}{5}$ in head. Mouth small, inferior, well inclined. Premaxillaries protractile down and forward. Lips rather thin, firm, moderate. Maxillary small, well inclined, more or less concealed, to hind nostril or scarcely to eye. Mandible depressed, small, included in upper jaw when closed, and rami well elevated inside mouth. Tongue obsolete, apparently adnate, fleshy, and scarcely differentiated from floor of mouth. Jaw edges firm, slightly trenchant. Nostrils large, together, anterior circular with rather broad posterior cutaneous margin exposing posterior in narrow crescent. Interorbital broadly and evenly convex. Preorbital small, trapezoidal, length $1\frac{1}{5}$ in eye. Postorbital width much less than infraorbital, latter about 3 in eye. Posterior preopercle margin convex, nearly vertical above.

Gill-opening forward to hind preopercle margin, or about last $\frac{2}{5}$ in head. Rakers about 2 + 8? short weak fleshy points, much less than filaments, and latter about $\frac{2}{3}$ of eye. Pseudobranchiæ a little shorter than filaments. Teeth 5-5, compressed, pointed, with slight grinding surfaces with entire edges.

Scales large, narrowly imbricated on sides of body, disposed in even longitudinal series, and but slightly smaller on edges of body and breast. Axillary scale short, rounded, not pointed. L. l. consisting of only 5 short tubes at shoulder, each extending over first half of scale exposure and in a straight series.

Dorsal origin about midway between snout tip and caudal base, third simple ray longest, though first branched subequal, depressed fin $1\frac{1}{2}$ to caudal base. Anal inserted about opposite first third of dorsal base, fin similar, depressed $1\frac{1}{3}$ to caudal base. Caudal forked, a little longer than head, lobes pointed, equal. Pectoral a little beyond ventral, upper rays longest. Ventral inserted a little before dorsal, to anal. Vent midway in postventral.

Color in alcohol faded largely uniform pale brownish, scarcely paler below. Upper surface of head and back above l. l. sprinkled with minute dusky dots, forming a patch just above gill-opening at shoulder, and another elongated area beginning shortly posterior and extending parallel with dorsal profile to caudal peduncle, where it is replaced a little below by a narrow median streak or line of dusky. Fins all pale brownish, a dusky blotch a little smaller than eye midway in height, and sloping down to its base, on front of dorsal. Iris slaty.

Length $1\frac{1}{2}$ inches.

Type, No. 29, 472, A. N. S. P. Pei Ho River, at Tien Tsin, China. N. F. Drake. From Stanford University.

Also No. 29, 473, paratype, same data, agrees in most respects.

This species is related to *R. sinensis* Günther, but differs in the absence of a narrow intensely black-edged anal fin, and having 5 tubes in its lateral line. *R. sinensis* is said to have l. l. tubes 3, though this character may be variable. From *R. ocellatus* (Kner) it differs in the dark dorsal blotch, though otherwise mostly agrees. Jordan and Seale's Shanghai example¹ differed in being almost uniform silvery and having l. l. tubes 3. From the Japanese species it also differs, as *R. oryze* Jordan and Seale,² *R. tanago* Tanaka³ and *R. miobuta* Tanaka⁴ all have barbels.

(*Maculatus*, spotted.)

***Acheilognathus lanceolatus* (Schlegel).**

Head $3\frac{1}{2}$ to 4; depth $2\frac{3}{4}$ to 3; D. usually iii, 8, 1, often iii, 9, 1, rarely iii, 10, 1; A. usually iii, 9, 1 or iii, 10, 1, rarely iii, 11, 1; scales usually 34, frequently 33, 35 or 36, seldom 32, rarely 31 + usually 2, seldom 3; usually 6 scales above l. l., rarely 5; 4 scales below l. l.; usually 16 predorsal scales, occasionally 15 or 17, rarely 13, 14 or 18; snout $3\frac{1}{5}$ to $3\frac{5}{8}$ in head; eye $2\frac{1}{5}$ to $3\frac{1}{5}$; maxillary 3 to 4; interorbital $2\frac{1}{4}$ to $2\frac{7}{8}$; teeth 5-5; length $1\frac{7}{8}$ to $3\frac{1}{4}$ inches. L. Biwa at Matsubara, Kurume, Katana (all Jordan and Synder), Jap. (Otaki.) A very large series.

***Acheilognathus limbatus* (Schlegel).**

Head $3\frac{2}{7}$ to 4; depth $2\frac{1}{2}$ to 3; D. usually iii, 10, 1, often iii, 11, 1, or iii, 12, 1 or iii, 13, 1; A. usually iii, 10, 1, often iii, 9, 1; scales 35 or 36 + usually 3, often 2; 6 scales above l. l.; usually 4 scales below l. l., rarely 5; 14 to 17 predorsal scales; snout $3\frac{1}{3}$ to 4 in head; eye $2\frac{3}{4}$ to $3\frac{1}{3}$; maxillary $3\frac{1}{4}$ to 4; interorbital $2\frac{2}{3}$ to $2\frac{1}{2}$; teeth 5-5; length

¹ *Proc. U. S. Nat. Mus.*, XXIX, 1905, p. 518.

² *L. c.*, XXX, 1906, p. 144.

³ *Journ. College of Sci.*, XXVII, 1909, p. 10.

⁴ *L. c.*, p. 12.

1½ to 3½ inches. Nagaya, Tsuruga and L. Biwa at Matsubara (all Jordan and Snyder), Jap.

RHODEOPS subgen. nov.

Type *Acheilognathus brevianalis* sp. nov.

This differs from the subgenus *Acheilognathus* Bleeker in the absence of maxillary barbels.

(ῥόδον, rose, hence *Rhodeus*; ὤψ, appearance.)

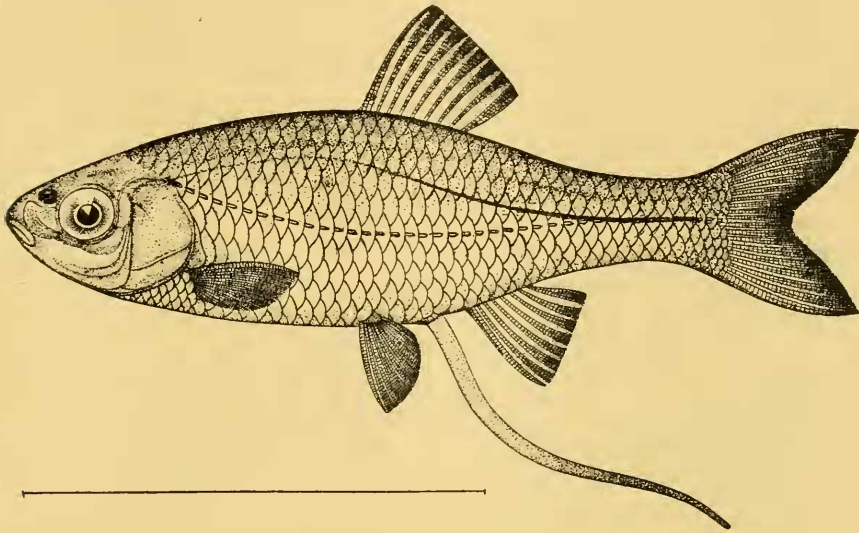


Fig. 2.—*Acheilognathus brevianalis* Fowler. (Type.)

Acheilognathus brevianalis sp. nov. Fig. 2.

Head $3\frac{2}{3}$; depth $3\frac{1}{5}$; D. iii, 8, 1; A. iii, 7, 1; P. 1, 12?; V. 1, 7; scales 37 in l. l. to caudal base, and 3 more on latter; 6 scales above l. l.; 4 scales below l. l.; 14 predorsal scales; head width $\frac{1}{2}$ its length; head depth at occiput $1\frac{1}{4}$; snout $3\frac{2}{5}$; eye $3\frac{2}{5}$; maxillary $4\frac{1}{5}$; inter-orbital $2\frac{1}{5}$; first branched dorsal ray $1\frac{1}{2}$; first branched anal ray $1\frac{7}{8}$; least depth caudal peduncle $2\frac{1}{5}$; pectoral $1\frac{1}{5}$; ventral 2.

Body well compressed, rather deep, contour nearly ellipsoid, edges convexly rounded, and greatest depth at dorsal origin. Caudal peduncle compressed, least depth $\frac{1}{2}$ its length.

Head small, deep, compressed, sides flattened and but slightly convergent below, and lower profile more inclined than upper. Snout short, convex over surface, end rather obtuse, projecting slightly beyond closed mandible, and length $\frac{3}{4}$ its width. Eye large,

circular, scarcely high, and center near first $\frac{2}{3}$ in head. Mouth small, inferior, well inclined. Premaxillaries protractile down and forward. Lips thick, fleshy, rather broad. No barbel. Maxillary small, well inclined, more or less concealed, to front nostril. Mandible depressed, small, included in upper jaw, and rami well elevated inside mouth. Tongue obsolete, apparently adnate, fleshy, and scarcely differentiated from floor of mouth. Nostrils large, together, anterior circular with cutaneous posterior margin exposing posterior in narrow crescent. Interorbital broadly and evenly convex. Preorbital large, trapezoidal, length $1\frac{1}{4}$ in eye. Postorbital width about $\frac{2}{3}$ of eye, and other suborbitals moderately wide. Posterior margin of preopercle slightly inclined anteriorly.

Gill-opening forward about to hind eye margin, or nearly midway in head. Rakers about $2 + 8$ short weak feeble points, about $\frac{1}{8}$ of filaments, and latter about $\frac{2}{3}$ of eye. Pseudobranchiae little less than filaments. Teeth 5-5, compressed, broad, ends curved over in a slight hook, and with slight grinding-surfaces, their edges and surfaces entire. Intestine long. Peritoneum dark. Long ovipositor (female) nearly equal half of body length.

Scales large, rather narrowly imbricated on sides of body, and disposed in series parallel with l. l. Scales on edges of body a trifle smaller than elsewhere, and on breast much smaller. Short and rather pointed axillary ventral scale. L. l. complete, decurved a little, and tubes simple, extending over about first $\frac{2}{3}$ of each exposed scale.

Dorsal origin about midway between front nostril and caudal base, first branched ray highest, depressed fin about $\frac{6}{11}$ to caudal base. Anal inserted about opposite base of last dorsal ray, first branched ray longest, depressed fin about $1\frac{2}{3}$ to caudal base. Caudal (now damaged) emarginate. Pectoral short, upper rays longest, fin pointed, reaches about $\frac{2}{3}$ to ventral. Latter inserted about opposite dorsal origin and reaches vent. Vent close before anal, but immediately in front is the long ovipositor, and though shrunken considerably now evidently protruded as far posteriorly as the end of the caudal.

Color in alcohol largely dull brownish, becoming paler on sides and below, the latter with silvery reflections. Upper surface of head brownish, slightly dusky on snout and above eyes, and sides bright silvery-white. Muzzle more or less brownish, though mandible pale. Parallel with vertebral column a narrow diffuse dusky streak along trunk, and this most pronounced posteriorly or along side of caudal peduncle. Fins all plain pale brownish. Iris silvery-white.

Length (ends of caudal slightly damaged) $1\frac{3}{4}$ inches.

Type, No. 28, 580, A. N. S. P. Lake Biwa at Matsubara, in Omi, Japan. Jordan and Synder. From Stanford University.

The above is the only example I have, and was found among a number of small fishes received from Stanford University several years ago. It appears to differ from *Acheilognathus himantegus* (Günther) and *A. mesembrinum* Jordan and Evermann, both from Formosa, in the fewer anal rays. From *A. cyanostigma* Jordan and Fowler, it differs in coloration. Both *A. himantegus* and *A. longipinnis* (Regan), the latter from L. Biwa, differ in having barbels.

(*Brevis*, short; *analis*, anal; with reference to the short anal fin.)

Paracheilognathus peihoensis sp. nov. Fig. 3.

Acheilognathus imberbis J. F. Abbott, Proc. U. S. Nat. Mus., XXIII, 1901, p. 484, Pei Ho River, at Tien Tsin, China. (Part.)

Head $3\frac{1}{2}$; depth $2\frac{1}{8}$; D. iii, 12, 1; A. ii, 10, 1; P. I, 15; V. I, 7;

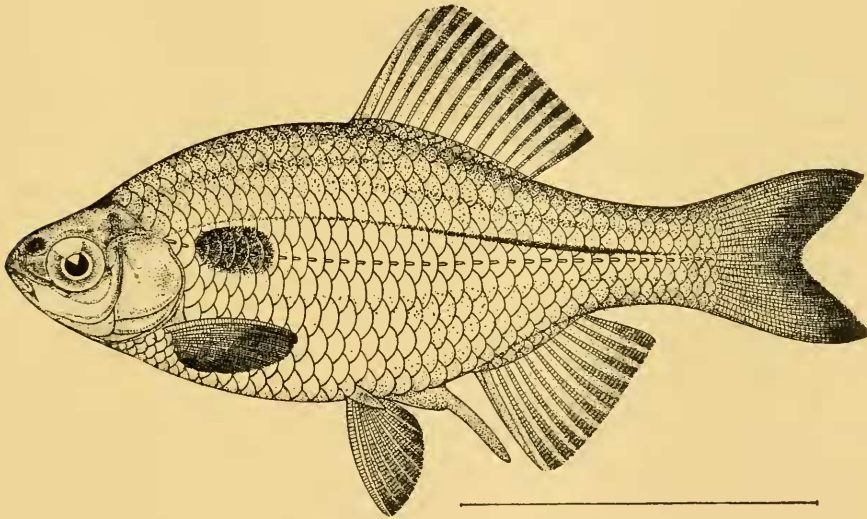


Fig. 3.—*Paracheilognathus peihoensis* Fowler. (Type.)

scales $34\frac{1}{2}$ in l. l. to caudal base, and 2 more on latter; 6 scales above l. l.; 5 scales below l. l.; 15 predorsal scales; head width $1\frac{1}{2}$ its length; head depth at occiput about $1\frac{1}{8}$; snout $3\frac{1}{2}$; eye 3; maxillary $3\frac{1}{2}$; interorbital $2\frac{1}{3}$; third dorsal spine $1\frac{1}{4}$; second anal spine $1\frac{1}{2}$; least depth caudal peduncle $1\frac{1}{2}$; pectoral $1\frac{1}{4}$; ventral $1\frac{1}{2}$.

Body rather deep, well compressed, contour ovoid with greatest depth anterior or about midway in preventral region, profiles similar, and edges apparently all evenly convex. Caudal peduncle compressed, least depth about equals its length.

Head deep, compressed, mostly flattened sides scarcely constricted below, and lower profile little more inclined than concave upper. Snout short, convex over surface, end rather obtuse, projecting beyond mandible, and length about $\frac{3}{4}$ its width. Eye large, circular, not high, and center near first third in head. Premaxillary protractile down and forward. Lips moderately thick, fleshy. Maxillary small, mostly concealed, to hind nostril. No barbel. Mandible depressed, small, included in upper jaw, and rami well elevated inside mouth. Tongue fleshy, little distinct, adnate. Jaw edges rather pliable, blunt. Nostrils large, together, anterior circular and with cutaneous posterior margin exposing posterior in narrow crescent. Interorbital broadly convex. Preorbital small, trapezoidal, length $1\frac{1}{2}$ in eye. Postorbital width about $\frac{1}{4}$ of eye, postero-infraorbital wider, and antero-infraorbital much narrower. Posterior margin of preopercle convex, inclined a little forward.

Gill-opening forward about last third in head, or about to hind preopercle margin. Rakers about 2 + 6? short weak fleshy points, much less than filaments, and latter about $\frac{2}{3}$ of eye. Pseudobranchiae little less than filaments. Teeth 5-5, compressed, broad ends curved over in a slight hook, and with moderately broad grinding-surfaces, their edges crenulated.

Scales large, rather narrowly imbricated on sides of body, and exposed in series parallel with l. l. Scales on edges of body and breast a trifle smaller than others. Pointed axillary ventral scale with greater outer portion free, equals $\frac{1}{3}$ of fin. L. l. complete, straight, not decurved, and tubes simple, extending about first half of each exposed scale.

Dorsal origin about midway between snout tip and caudal base, first branched ray (damaged) evidently longest, depressed fin about $\frac{2}{3}$ to caudal base. First 3 anterior dorsal rays spinous, straight, robust. Anal inserted about opposite base of eighth branched dorsal ray, its first branched ray longest, depressed fin $\frac{4}{5}$ to caudal base. First 2 anterior anal rays spinous, straight, robust. Both dorsal and anal depressible in a scaly basal groove. Caudal forked, lobes pointed. Pectoral short, rounded or expanded distally, $\frac{3}{4}$ to ventral. Latter inserted a little before dorsal, and about to anal. Vent about midway in postventral region, and ensheathed behind base of the fleshy ovipositor, latter beginning just behind ventral bases and reaching back well beyond anal front.

Color in alcohol faded dull brownish almost entirely, with traces of slight silvery sheen, especially on opercle. Lower part of body scarcely paler. Back sprinkled with minute pale dusky dots. Iris

grayish, evidently silvery. An elongated deep-brown blotch, a little longer than eye, about level with latter's upper edge just behind gill-opening. Behind this an indistinct pale streak, margined narrowly above from about opposite base of ventrals almost to caudal base with a narrow blackish line. Dorsal pale brownish with about 3 pale dusky blotches on each ray, forming as many longitudinal series of spots, though upper 2 rows closer together. Other fins all plain pale brown.

Length $2\frac{1}{2}$ inches.

Type, No. 29,468, A. N. S. P. Pei Ho River, at Tien Tsin, China. N. F. Drake. From Stanford University.

Also Nos. 29,469 to 29,471, paratypes, same data. Head $3\frac{3}{4}$ to 4; depth $2\frac{2}{5}$ to $2\frac{3}{4}$; D. iii, 14, 1 once, iii, 12, 1, usually; A. ii, 10, 1; scales 33 or $34 + 2$; 6 scales above l. l.; 5 scales below l. l.; 15 or 16 predorsal scales; snout $3\frac{1}{2}$ to 4 in head; eye $2\frac{3}{4}$ to $3\frac{1}{10}$; maxillary $3\frac{1}{2}$ to 4; interorbital $2\frac{2}{5}$ to $2\frac{3}{4}$; teeth 5-5; length $2\frac{1}{8}$ to $3\frac{3}{8}$ inches.

Related to *Paracheilognathus imberbis* Bleeker, but differing chiefly in the presence of the dark shoulder blotch. Bleeker's description fails to note this character, and his figure⁵ also does not indicate it. His example has been thought by Günther⁶ to be different from the latter's *Achilognathus imberbis*⁷, which is said to have both dorsal and anal radii 12. *Paracheilognathus rhombeus* (Schlegel) from Japan, differs from my species in having maxillary barbels and more scales below the l. l. *Acanthorhodeus dicus* Rutter from Swatow,⁸ agrees with this latter in having maxillary barbels, and is therefore not identical.

(Named for the Pei Ho River, in the Province of Pechili, China.)

HEMIGRAMMOCYPRIS gen. nov.

Type *Hemigrammocypriis rasborella* sp. nov.

Body compressed, ellipsoid, moderately deep, postventral trenchant. Head moderate. Snout short. Eye moderate. Mouth moderate, well inclined. Premaxillaries protractile. Maxillary well inclined, not reaching eye. No barbels. Jaws firm, mandible slightly protruding. Interorbital broadly convex. Rakers small. Pseudo-branchiæ well developed. Teeth 1, 3, 5-5, 3, 1, hooked, with slight grinding-surfaces. Scales large, about 30, narrowly imbricated.

⁵ Verh. Kon. Ak. Wetensch. (Mém. Cyprin. Chine), XII, 1871, p. 37, Pl. 4, fig. 1.

⁶ Zool. Record, 1871, p. 107.

⁷ Cat. F. Brit. Mus., VII, 1868, p. 278.

⁸ Proc. Acad. Nat. Sci. Phila., 1897, p. 58.

L. 1. incomplete, decurved, not extending beyond ventral base. Dorsal about midway between hind pupil margin and caudal base, rays all flexible, contains 8 branched. Anal inserted close behind dorsal base, rays all flexible, contains 8 branched. Caudal emarginate. Pectoral $\frac{3}{4}$ to ventral. Ventral inserted little before dorsal, about $\frac{3}{4}$ to anal. Vent close to anal. Size small.

This genus seems to be related to *Rasbora*, but differs in the incomplete l. 1. From *Zacco* and *Opsariichthys* it also differs in the same character, besides others, such as the larger scales, etc.

(*Εμτ*, half; *γραμμῆ*, line; *κόπρις*, *Cypris*.)

Hemigrammocypnis rasborella sp. nov. Fig. 4.

Head $3\frac{1}{4}$; depth 3; D. iii, 7, 1; A. iii, 8, 1; P. 1, 11; V. 1, 6; scales in lateral series to caudal base $32 + 2$; 12 scales transversely, between dorsal and anal origins; 13 predorsal scales; head width 2 in its length; head depth at occiput $1\frac{2}{5}$; first branched dorsal ray $1\frac{2}{7}$; first branched anal ray $1\frac{4}{5}$; least depth caudal peduncle $2\frac{1}{2}$; pectoral $1\frac{5}{7}$; ventral $1\frac{3}{4}$; snout 4 in head, measured from upper jaw tip; eye $3\frac{1}{2}$; maxillary 3; interorbital 3.

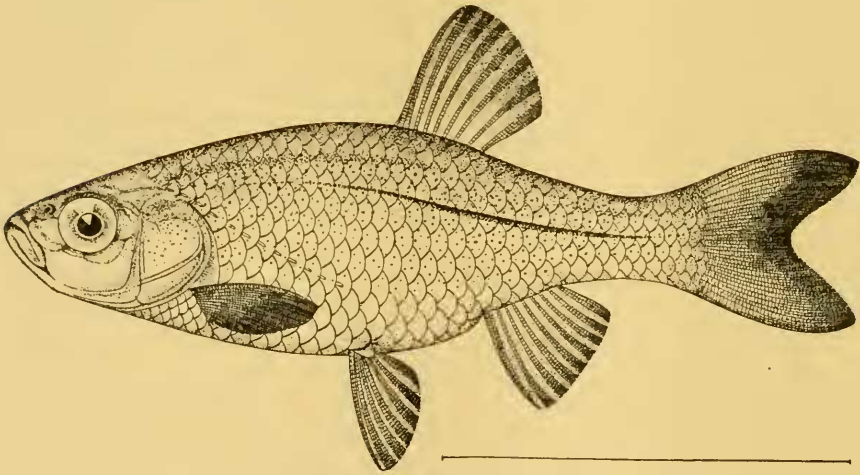


Fig. 4.—*Hemigrammocypnis rasborella* Fowler. (Type.)

Body compressed, moderately deep, rather ellipsoid, greatest depth at dorsal origin, postventral trenchant and other edges convexly rounded. Caudal peduncle compressed, least depth $1\frac{1}{2}$ its length.

Head compressed, moderate, flattened sides slightly converging below, upper profile nearly straight and less inclined than lower,

which forms an angle at mandibular articulation. Snout convex over surface, upper profile straight, and length about $\frac{3}{4}$ its width. Eye circular, moderate, a little high, and center near first third in head. Mouth moderate, well inclined. Premaxillaries protractile anteriorly down. Lips firm, scarcely distinct from jaws. Maxillary well inclined to hind nostril. Mandible prominent, depressed, protruding beyond snout tip, moderate, and rami a little elevated inside mouth. Tongue fleshy, not free. Jaw edges firm, scarcely trenchant and laterally on each side of upper a broad notch. Nostrils large, together, anterior circular with rather broad posterior cutaneous margin exposing posterior in narrow crescent. Interorbital broadly and evenly convex. Preorbital moderate, trapezoidal, length $1\frac{1}{3}$ in eye. Postorbital width $2\frac{1}{3}$ in eye, and infraorbitals scarcely more. Posterior preopercle margin vertical, or sloping but slightly backwards below.

Gill-opening forward nearly midway in head, not quite to hind eye margin. Rakers about $2 + 8?$ firm points, about 4 in filaments, and latter about $1\frac{2}{3}$ in eye. Pseudobranchiæ a little less than filaments. Teeth 1, 3, 5-5, 3, 1, ends hooked, and larger with slight smooth grinding-surfaces, edges also smooth.

Scales large, narrowly imbricated, on sides of body, disposed in even longitudinal series, and smaller on edges of body and breast. Axillary ventral scale short, little pointed, mostly adnate. L. 1. decurved slightly below lowest third in greatest body depth, incomplete, and only extending opposite ventral base. Tubes short, each over about first $\frac{2}{3}$ of exposed scale, simple, and 12 in number.

Dorsal origin nearly midway between hind pupil margin and caudal base, first branched ray longest, depressed fin $1\frac{5}{6}$ to caudal base. Anal inserted just behind dorsal base, fin similar, depressed $1\frac{1}{2}$ to caudal base. Caudal emarginate, lobes equal, little pointed. Pectoral $\frac{3}{4}$ to ventral, upper rays longest. Ventral inserted a little before dorsal, nearly midway between tip of muzzle and caudal base. Vent simple, close before anal.

Color in alcohol generally dull brownish, a little paler below. Back and upper surface of head sprinkled with minute dusky dots, becoming a little more sparse and larger on opercle and longitudinally along middle of side, most pronounced superiorly. Concurrent with vertebral column a dusky streak, diffuse largely, and becoming more distinct and emphasized along caudal peduncle side, but fading out at pale caudal base. Fins all pale brownish, dorsal, caudal and upper

pectoral rays all sprinkled with minute dull dusky dots. Snout pale dusky. Lips pale. Iris whitish.

Length $2\frac{1}{16}$ inches.

Type, No. 29,162, A. N. S. P. Lake Biwa at Matsubara in Omi, Japan. Jordan and Snyder. From Stanford University.

A large number of small examples, with the same data, were received with the other small cyprinoids some years ago.

(*Rasborella*, diminutive, from *Rasbora*, a related genus.)